

BOLDYREV, V.L.

Collapsing and sliding coasts. Trudy. Inst.ocean. 21:118-132 '57.
(Black Sea--Seashore) (MLRA 10:7)

BOLDYREV, V.L.

Use of fluorescent sand in studying mass drifts of littoral sand. Biul.Okean kom. no.3:69-72 '59. (MIRA 13:4)

1. Chernomorskaya eksperimental'naya nauchno-issledovatel'skaya stantsiya Instituta okeanologii AN SSSR.
(Beach erosion) (Fluorescence)

PHASE I BOOK EXPLOITATION

SOV/5331

International Geological Congress. 21st, Copenhagen, 1956.

Morskaya geologiya (Marine Geology) Moscow, Izd-vo AN SSSR, 1960. 205 p. 2,500 copies printed. (Series: Doklady sovetskikh geologov, problema 10)

Editorial Board: P. L. Bezrukov, Resp. Ed.; A. V. Zhivago, V. P. Zerkovich and G. B. Udintsev; Ed. of Publishing House: V. S. Shoyman; Tech. Ed.: V. Karpov.

PURPOSE: This book is intended for geologists and oceanographers.

COVERAGE: The book contains 18 articles representing the reports given by Soviet geologists at the 21st. International Geological Congress. Individual articles deal with the bottom topography, sedimentation, and tectonics of oceans (Western Pacific and Southern Indian), as well as the geomorphology and tectonics of the Black and Caspian Seas and Soviet sectors of the Baltic. An English résumé accompanies each article. No personalities

Shchegolev, M. M., I. Ye. Kibal'tsov, G. B. Udintsev, I. B. Andreyeva, A. P. Molodtsov, and Yu. I. Neprochnov. Results of Scientific-Acoustic Investigations of the Earth's Crust Under Seas and Oceans 35

Sildova, Kh. M. Stratigraphy of Sediments and the Paleogeography of the Northwestern Pacific and the Far Eastern Seas of the USSR According to Sea-Bottom Foraminifers 59

Lisitsyn, A. P. Formation of Sediments in the Southern Pacific and Indian Oceans 69

Lapina, M. N., and N. A. Belov. Bottom Sedimentation Conditions in the Arctic Ocean 88

Goncharov, V. P., and Yu. P. Neprochnov. Bottom Geomorphology and Tectonic Problems of the Black Sea 94

Bolotov, V. P., L. S. Kulakova, and G. V. Azeпова. Relief and Recent Floor Structure of the Southern Caspian Sea 105

Gorshenovich, D. Ye. Recent Shelf Deposits in the Marginal Seas of Northeast Asia 116

Klenova, M. V. The Geology of the Barents Sea 123

Gorshkova, T. I. Sediments in the Norwegian Sea 132

Tsarkova, N. V. Study of the Diagenesis of Some Marine Sediments 140

Zerkovich, V. P., O. K. Leont'yev, and Ye. M. Nevenskiy. The Influence of the Eurasian Post-Glacial Transgression on the Development of the Coastal Zone of Soviet Seas 154

Aybulatov, M. A., V. I. Boldyrev, and V. P. Zerkovich. Some New Data on Sediment Streams Along Shores 164

Budakov, V. I., A. S. Ionin, P. A. Kaplan, and V. S. Medvedev. Recent Vertical Movements of Seashores in the Soviet Union 175

Leont'yev, O. K. Types and Formation of Lagoons on Recent Seashores 188

Card-44

BOLDYREV, V.I.

Analyzing the profile of beach barriers. Izv.Vses.geog.ob-va 92
no.5:456-461 S-0 '60. (MIRA 13:9)
(Markitanskaya, Cape--Coasts)

BOLDYREV, V.L.; NEVESSKIY, Ye.N.

The western Temryuk drift of sandy sediments. Trudy Okean.kom. 8:
45-59 '61. (MIRA 14:5)

1. Institut okeanologii AN SSSR.
(Temryuk Gulf region—Coasts)

BOLDYREV, V.L.

Aerial photographic surveying in studying the drift of sandy sediments.
Trudy Okean.kom. 8:201-205 '61. (MIRA 14:5)

1. Institut okeanologii AN SSSR.
(Aerial photogrammetry) (Sedimentation and deposition)

KAPLIN, P.A.; BOLDYREV, V.L.

Joint Polish-Soviet exploration of the Baltic Coast in 1958.
Trudy Okean.kom. 8:245-250 '61. (MIRA 14:5)

1. Institut okeanologii AN SSSR.
(Baltic Sea—Coasts)

PAVLIDIS, Yu.A.; BOLDYREV, V.L.

Postglacial development of the central section of the southern coast
of the Baltic Sea (within the Polish People's Republic). Trudy
Okean.kom. 12:30-41 '61. (MIRA 15:1)

1. Institut okeanologii AN SSSR.
(Baltic Sea--Coast changes)

BOLDYREV, V.L.

History of the development and recent dynamics of the Chushka Spit.
Trudy Inst. okean. 48:67-87 '61. (MIRA 15:1)
(Chushka Spit--Coast changes)

BOLDYREV, V.L.

Underwater sand steps as indicators of sediment transport along the
shore. Trudy Inst. okean. 48:193-201 '61. (MIRA 15:1)
(Coasts) (Sedimentation and deposition)

BOLDYREV, V.L., kand. geograf. nauk

Visits of foreign scientists to the U.S.S.R. Vest. AN SSSR 35
no.2:99 F '65. (MIRA 18:3)

BOLDYREV, V.M., pomoshchnik mashinista elektrovoza,

Perhaps it is better to do it this way. Elek.i tepl.tiaga 3
no.5:34-35 My '59. (MIRA 12:9)

1. Depo Kuybyshev.
(Electric railway motors)

AKCHURIN, B.S., kand. vet. nauk, otv. red.; AYUPOV, Kh.V., zam.
otv. red.; ALFAROV, D.A., kand. biol. nauk, red.;
BOLDYREV, V.M., nauchn. sotr., red.; SATTAROV, A.S.,
nauchn. sotr., red.; BUTIKOVA, S.N., nauchn. sotr., red.;
TRASUNOVA, Ye.T., tekhn. red.

[Papers of the Bashkir Scientific Research Institute of Agriculture] Uchenye zapiski Bashkirskogo nauchno-issledovatel'skogo instituta sel'skogo khoziaistva. Ufa, 1963. 312 p.
(MIRA 16:10)

1. Bashkirskiy nauchno-issledovatel'skiy institut sel'skogo khozyaystva. 2. Zaveduyushchiy otdelom infektsionnykh bolezney Bashkirskogo nauchno-issledovatel'skogo instituta sel'skogo khozyaystva (for Sattarov).
(Bashkiria--Veterinary medicine)

BOLDYREV, V.M.

Structure of empirical formulae for calculating the maximum discharge
in mountain rivers. Vest. Mosk. un. Ser.5: Geog. 19 no.5:78-81 SMO '62.
(MIRA 18:1)

BOLDYREV, V.M.

Calculating maximum discharges of mountain rivers in eastern
Kazakhstan. Vest. AN Kazakh.SSR 21 no.2:23-30 F '65.

(MIRA 18:3)

BOLDYREV, V.M.

Calculation of the mean dates of the spring-summer floods over
a period of many years on the rivers of eastern Kazakhstan.
Trudy Otd. geog. AN Kazakh. SSR no.11:41-48 '65.

(MIRA 18:8)

BOLDYREV, V.M.; GALPERIN, R.I.

Distribution of maximum snow accumulation in eastern Kazakhstan.
Trudy Otd. geog. AN Kazakh. SSR no.11:13-18 '65.

(MIRA 18-8)

BOLDYREV, V.N.

(Veterinarian)

Autohemotherapy in rheumatic inflammation of the hoofs of horses

So: Veterinariya; 23; (8-9); August/September 1946

BOLDYREV, V. N., (Veterinary Surgeon, Town of Elgava, Latvian SSR)

The use of bicillin in veterinary sciences

Veterinariya vol. 38, no. 10, October 1961, pp. 81-89.

BOLDYREV, Viktor Nikolayevich; ROZANOV, Sergey Konstantinovich;
MYAKUSHKOV, V.A., red.; KIR'YANOVA, Z.V., mlad. red.;
VAS'KINA, R.S., tekhn. red.

[Sixty days along the fiftieth parallel] 60 dnei po pias-
tidesiatoi paralleli. Moskva, Geografiz, 1963. 261 p.
(MIRA 17:3)

ZHINKIN, G.N. (Leningrad); KOGAN, S.A. (Leningrad); KALGAKOV, V.F. (Leningrad);
BOGDYREV, V.N. (Leningrad)

Practices in the electrosilicization of soils in Leningrad.
Osn., fund. i mekh. grun. 7 no.1:5-6 '65.

(MIRA 18:4)

BELYAYEV, B.N.; BOLDYREV, V.S.

Use of the theory of random functions in the study of sea currents.
Okeanologiya 3 no.6:953-961 '63. (MIRA 17:4)

BELYAYEV, B.N.; BOLDYREV, V.S., kand.tekhn.nauk; FORTUS, M.I., kand.
fiz.-matem. nauk

IU.M.Alekhn's book "Statistical forecasts in geophysics."
Meteor. i gidrol. no. 2:56-57 F '64. (MIRA 17:5)

ACC NR: RP004153

(V)

SOURCE CODE: BR/0075/07/000/001/0050/0000

AUTHOR: Beldyayov, V. S. (Candidate of Technical Sciences; Captain 2d Rank);
Belyayov, B. N. (Engineer; Captain 2d Rank)

ORG: none

TITLE: Influence of current variability on the accuracy of determining a ship's speed

SOURCE: Morskoy sbornik, no. 1, 1967, 58-60

TOPIC TAGS: ocean current, ship, ship navigation, combatant ship, correlation function, naval equipment, telemetry equipment, navigation equipment, oceanographic equipment

ABSTRACT: The various methods recommended in official instructions for determining current speed are discussed and a comparison is made between standard arguments and the results obtained by use of a measured mile formula developed from current variability observations made at sea. The results are tabulated and the fact that the results obtained by a ship making two, or even three, runs will not enable the ship to determine its speed error to within less than 0.5% is noted. The current correlation function must be known in order to select a rational maneuvering plan,

Card 1/2

RCC NR: AP7004153

and can be obtained by processing the information obtained from buoys set out on existing, or planned, ranges and operated over long periods of time. When four runs are made over a measured mile the results will fall within the 0.5% minimum noted; hence this is the only method which will satisfy requirements at all speeds. Orig. art. has: 14 formulas and 1 table.

SUB CODE: 08 / SUBM DATE: None

Card 2/2

BOLDYREV, V.V.; SAKOVICH, G.V.; YAKOVLEV, L.K.

Using the trituration method in the analysis of multimetallic ores.
Soob.o nauch.rab.chl.VKHO no.3:31 '53. (MIRA 10:10)
(Ores--Analysis)

Distr: 4B41

31
The temperature dependence of the rate of thermal decomposition of ferric, manganic, copper, and iron oxalates? V. V. Boldyrev, *Trudy Tomsk. Univ.* 126, 51-44 (1954); *Sovetskii Khim. Nauch. Rabot. Vsesoyuz. Khim. Otkryestim. Mendeleeva* 1955, No. 2, 28-9; *Referat. Zhur. Khim.* 1956, Abstr. No. 15041; cf. *C.A.* 52, 1741z. The effect of temp. on the rate of thermal decomposition was studied for $\text{FeC}_2\text{O}_4 \cdot 2\text{H}_2\text{O}$ (I), $\text{CuC}_2\text{O}_4 \cdot 0.5\text{H}_2\text{O}$ (II), $\text{PbC}_2\text{O}_4 \cdot \text{H}_2\text{O}$ (III), and HgC_2O_4 (IV). The decomposition rate of I, II, and III was detd. by measuring wt. loss of the salt on a quartz spring balance. The rate const. k was detd. either from the equation $k = (2/30) \ln(a/(a-x))$, where $a =$ wt. of sample and $x =$ wt. of transformed material, or it was compared with a quantity inversely related to the time of attainment of a definite extent of transformation. The rate of decomposition of IV was estd. by detn. of the time of delay of flash. Thermal stability of the oxalates increases in the order $\text{IV} < \text{II} < \text{I} < \text{III}$. At $296-342^\circ$, the activation energy, E , of the thermal decomposition of I in air is 3700 cal./mol., but at temps. below 290° , $E = 13,790$ cal./mol. For the thermal decomposition of I in a stream of CO_2 at $270-380^\circ$, $E = 3390$ cal./mol. During the decomposition in air of II, E varies from 12,300 cal./mol. at $265-38^\circ$ to 6500 cal./mol. at $285-337^\circ$. For III at $340-90^\circ$ and IV at $155-76^\circ$, E equals 34,000 and 28,500 cal./mol., resp. The variation of E with temp. can be explained by the fact that at low temps. the rate of decomposition of I and II in air is detd. by the rate of heat transfer, but at temps. higher than 290° by the rate of the chem. reaction. The constancy of E in the whole range of temps. during the decomposition of I in a stream of CO_2 is attributed to the absence of complications caused by oxidation of the products of reaction. The E values found are related to values of crystal-chemical negativity of cations as described by Kapustin&il. I. Mlynszewska

BOLDYREV, V. V.

USSR/Physical Chemistry - Kinetics. Combustion. Explosives. Topochemistry.
Catalysis, B-9

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61084

Author: Boldyrev, V. V., Yakovlev, L. K., Maryakhina, V. N.

Institution: None

Title: Influence of Preliminary Treatment on Velocity of Thermal Decomposition of Lead Oxalate

Original

Periodical: Uch. zap. Tomskogo un-ta, 1955, No 26, 44-49

Abstract: Study by the gravimetric method of the decomposition of lead oxalate (I) at 350°. During the first 10 days following preparation velocity of decomposition of I decreases with increasing duration of storage of the preparation; according to roentgenographic data concurrently takes place an orderly arrangement of the lattice of I. Further aging of I does not affect the velocity of its thermal decomposition. Preliminary heating at 200°-250° and also irradiation with ultra-violet rays slows down thermal decomposition of I. Preliminary

Card 1/2

USSR/Physical Chemistry - Kinetics. Combustion. Explosives. Topochemistry.
Catalysis, B-9

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61084

Abstract: treatment of I with hydrazine hydrate accelerates decomposition of I. Probably due to catalytic action of metal particles formed on partial reduction of I, and also due to disruptions produced in the lattice of I. Treatment with AgNO_3 and also mechanical mixing of I with Ag or Pb did not alter the velocity of decomposition of I.

Card 2/2

Dependence on former treatment of the rate of thermal decomposition of lead oxalate. V. V. Baldyrev. *Sbornik Nauch. Rabot, Akad. Nauk Beloruss. S.S.R., Inst. Khim.* 1956, No. 5, 160-12. — Freshly prepd. Pb oxalate decomp. thermally at a greater rate than does an aged sample because of deformations in the freshly prepd. crystals. 2) Irradiation with ultraviolet rays or heating at temps. below the decompn. point decreases the rate of thermal decompn. Possibly, these treatments result in a more ordered crystal. When PbC_2O_4 is treated with hydrazine hydrate the rate of its decompn. is increased owing to the catalytic effect of the particles of metallic Pb. Ariadna S. Osone.

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1-4E3d
1-4E4j

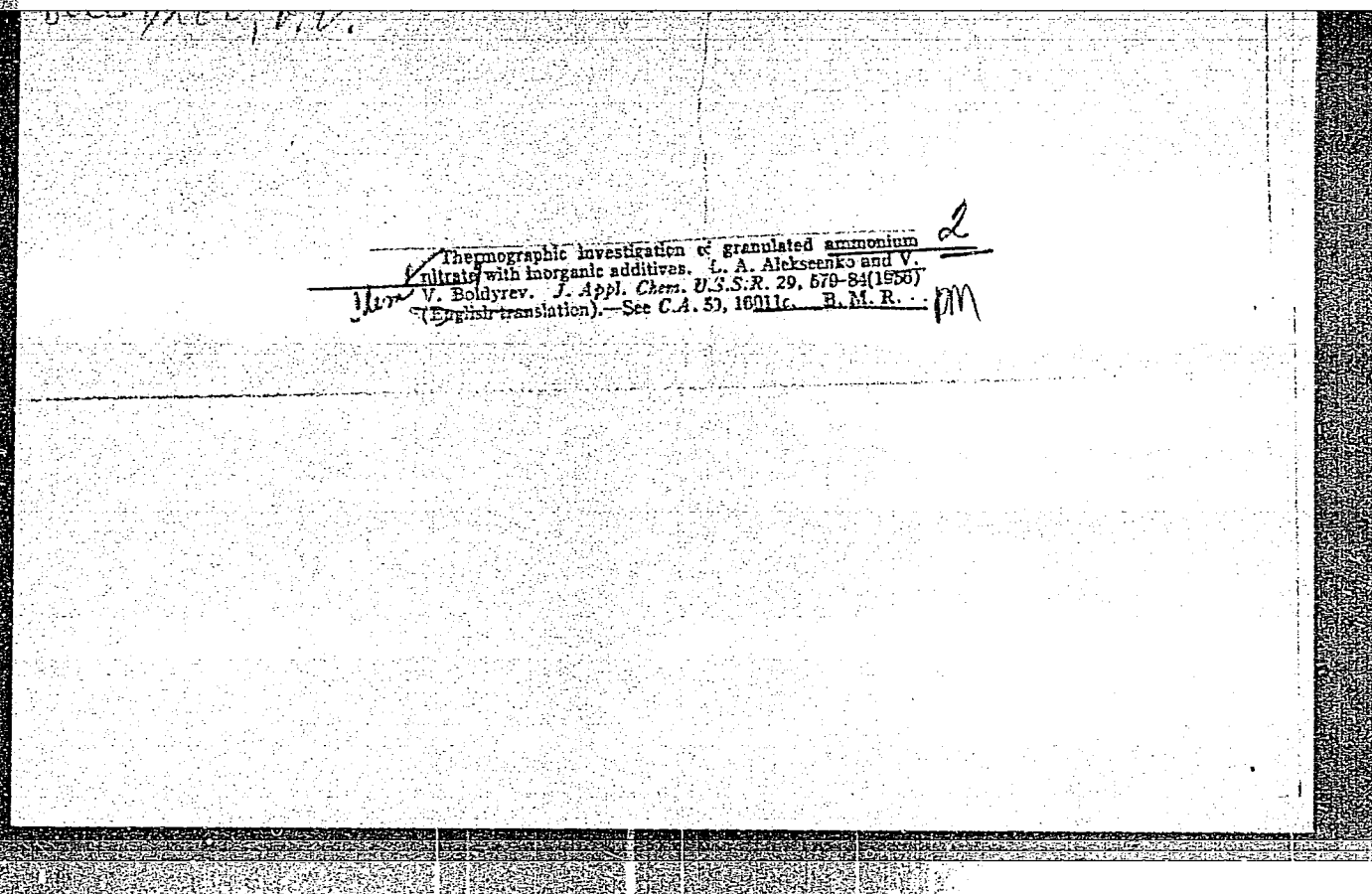
2)
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Tomskiy gosudarstvennyy universitet im V. V. Kuybysheva.

Boldyrev, V.

✓ Thermographic investigation of granulated ammonium nitrate with inorganic additives. L. A. Alekseenko and V. V. Boldyrev. *Zhur. Priklad. Khim.* 29, 529-35 (1956).
 The following thermograms of NH_4NO_3 were obtained against NH_4Cl : (1) ordinary cryst. form, (2) granulated, (3) granulated with dolomite after 1-yr. storage, (4) and (5) granulated with phosphorite and with Fe in HNO_3 , (6) crystd. at 35° from a soln. satd. at 80° , (7) molten NH_4NO_3 poured and cooled rapidly in a thin layer, (8) as in (3) after 3 yrs. storage, (9) granulated after prolonged heating, (10) after 5 cycles of heating and cooling, (11) moisture added to the granulated form, (12) moisture added to the (3) mixt. All curves show the endothermic min. at $85-88^\circ$ and $125-130^\circ$ corresponding to the transitions of forms III \rightarrow II and II \rightarrow I. The 3rd min. at 60° appears in all curves except (6); this suggests that the min. at 50° is due to the transition of IV \rightarrow II since the modification IV was absent. The fourth min. at 32° corresponding to the transition III \rightarrow IV is distinct in all thermograms except (5), (6), and (7); it is weaker in (2) than in (1) and extremely slight in (3) and (4). It is more pronounced in (8), (10), (11), and in (12) than in (1). The additives did not modify the x-ray pattern of NH_4NO_3 . The absence of the 32° min. in (6) and in (7), indicating the absence of the transition IV \rightarrow III, suggest rapid cooling and low moisture content as effective means for the decrease of caking.
 I. Benenwitz

2/



BOLDYREV, V.V.; ALEKSEYENKO, L.A.

Heating curves for slightly deteriorated ammonium saltpeter
containing inorganic additions. Zhur.prikl.khim. 29 no.9:
1316-1323 S '56. (MLRA 9:11)

1. Kafedra neorganicheskoy khimii Tomskogo Gosudarstvennogo
universiteta imeni V.V. Kuybysheva.
(Ammonium nitrate)

USSR/Physical Chemistry - Kinetics. Combustion.
Explosives. Topochemistry. Catalysis.

B-9

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 3825

Author : Boldyrev V.V.

Title : Effect of Sample Size on Ignition Delay of Oxalates and Fulminates of Mercury and Silver

Orig Pub : Zh. fiz. Khimii, 1956, 30, No 5, 1088-1091

Abstract : Determination of ignition delay t (between time of placing the finely dispersed powder into the thermostat and the time of ignition) was made for Hg oxalate at 157-176° using samples (a) of 0.015-0.08 g, and for Ag oxalate at 172-187°, with $a = 0.010$ -0.040 g, and for Hg fulminate at 120-150°, with $a = 0.005$ -0.020 g. Apparent energy of activation of the processes under study was, respectively, of 28500, 58980 and 40170 cal/mole. It was found that in the case of the above-stated compounds t increases with decrease in a ; in the case of Ag

Card 1/2

- 133 -

USSR/Physical Chemistry - Kinetics. Combustion.
Explosives. Topochemistry. Catalysis.

B-9

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 3825

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206110017-3"

...effect of the size of a on t could not be detected, the effect of sample size on t is most pronounced at low temperatures and is attributed by the author to the result of spontaneous heating.

Card 2/2

- 134 -

**Effect of a Single Influent Opening
on Sedimentation in a Tank**

William John Boegly, Jr. (Purdue Univ., Lafayette, Indiana). *Univ. Microfilms* (Ann Arbor, Mich.). Publ. No. 18831, 128 pp. (microfilm, \$1.70; paper enlargement, \$12.80); *Dissertation Abstr.* 16, 2125-6 (1950). A. W. W.

Phy
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Mat
De
Use of float balance in the study of reaction kinetics involving solids. Y. V. Bokhyrev and G. V. Sakovich (State Univ., Tomsk). *Zhur. Fiz. Khim.* 30, 1418-18 (1956).
An automatic float balance, based on the application of the Archimedes law, is described. The sensitivity, for small values of the sp. gr. of the soln., exceeds by over 3 times the sensitivity of spring balances. The balance can be used in various kinetic studies involving changes in wt., such as absorption and loss of water, thermal decompn. of solids, etc. A no. of advantages are claimed for float balances over other types in measuring changes in wt., especially in thermographic work where convection currents will be less disturbing.
W. M. Sternberg

SOV/137-58-11-21957

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 11, p 18 (USSR)

AUTHOR: Boldyrev, V. V.

TITLE: The Influence of the Prehistory of a Compound Upon the Rate of Thermal Decomposition of Solids /Vliyaniye predystorii preparata na skorost' termicheskogo razlozheniya tverdykh veshchestv/

PERIODICAL: Dokl. 7-y Nauchn. konferentsii, posvyashch. 40-letiyu Velikoy Oktyabr'sk. sots. revolyutsii, Nr 2, Tomsk Tomskiy un-t, 1957, pp 144-145

ABSTRACT: The method by which a solid is produced and the length of time it is stored affect the rate of thermal decomposition; this effect is due to changes in the crystal edges and the appearance of defects in the crystal lattice. These hypotheses are confirmed by experiments.

A. G.

Card 1/1

BOLDYREV, V. V.

AUTHORS: Boldyrev, V.V., Yermolayev, A.S.

76-11-27/35

TITLE: The Catalytic Effect of Solid Products in the Reduction of Nickel and Copper Oxides by Hydrogen (O kataliticheskoy vliyaniy tverdykh produktov pri vosstanovlenii oksidov nikelya i medi vodorodom)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1957, Vol. 31, Nr 11, pp. 2562-2570 (USSR)

ABSTRACT: The present paper endeavors experimentally to show the presence of the lacking of self-catalysis in the reduction of nickel- and copper oxides by hydrogen. Experimental results show that the metallic nickel and copper forming in the reduction of NiO and CuO by hydrogen exercise a catalytic effect on the velocity of reaction. The catalytic effect of these additions can be imagined by taking the agreement with respect to orientation and the initial oxide according to P.D.Dankov [Ref. 24] into account. If one compares the structure of NiO with that of the β -nickel forming during the reaction, the possibility of an orientation of the first-formed metal layer according to the oxide can be imagined. Here the inter-atomic distance in the nickel lattice increases by about 14% (compared with the normal one). The same seems to occur in the reduction of copper

Card 1/2

76-11-27/35

The Catalytic Effect of Solid Products in the Reduction of Nickel- and Copper Oxides by Hydrogen

oxide, but in this case agreement as to orientation must be of a complicated character: 1.) Because of the greater difference of the lattice parameters and types in the initial substance and the reaction product, and 2) Because of the possible occurrence of an intermediate layer of copper oxide. The deforming effect is reciprocal. The catalytical influence of the product can occur only if there is sufficient contact between the product and the initial substance. This explains the reason why a mechanical addition of copper powder exercised no influence upon the velocity of reaction. This is in agreement with published data. There are 8 figures, 2 tables and 25 references, 18 of which are Slavic.

ASSOCIATION: Tomsk State University imeni V.V.Kuybyshev (Tomskiy gosudarstvennyy universitet im. V.V.Kuybysheva)

SUBMITTED: November 2, 1956

AVAILABLE: Library of Congress

Card 2/2

BOLDYREV, V.V.; ALEKSEYENKO, L.A.; BELOUSOVA, L.A.; CHAYKOVSKAYA, L.I.

Study of the rate of absorption and loss of moisture by
ammonium nitrate and crystal hydrates of magnesium and calcium
nitrates. Trudy TGU 145:155-160 '57. (MIRA 12:3)

1. Kafedra neorganicheskoy khimii Tomskogo gosudarstvennogo
universiteta imeni V.V. Kuybysheva.
(Nitrates) (Moisture)

DOLDYREV, V.V.

AUTHOR: Krylov, O. V., Candidate of Chemical Sciences SOV/30-58-7-34/49

TITLE: Physics and Physical Chemistry of Catalysis (Fizika i fiziko-khimiya kataliza) Transactions of the All-Union Conference (Vsesoyuznaya konferentsiya)

PERIODICAL: Vestnik Akademii nauk SSSR, 1958, Nr 7, pp. 119 - 122 (USSR)

ABSTRACT: This conference convened in Moscow between March 20th and March 23rd. It was called by the Department of Chemical Sciences and the Institute of Physical Chemistry of the AS USSR (Otdeleniye khimicheskikh nauk i Institut fizicheskoy khimii Akademii nauk SSSR). It was attended by more than 600 persons from different towns of the Soviet Union as well as from countries of the people's democracies. Nearly 100 reports were submitted, 78 of which were given to the participants for discussion. The remainder was read. The following reports were heard:

1) S. Z. Roginskiy, (Institute of Physical Chemistry, AS USSR), spoke about the selective methods concerning semiconductor catalysis.

Card 1/5

Physics and Physical Chemistry of Catalysis.
Transactions of the All-Union Conference

SOV/30-58-7-34/49

- 2) V. V. Boldyrev, Tomsk University, used electron representations for the explanation of the course of topochemical reactions.
- 3) N. F. Keyyer, (Institute of Physical Chemistry, AS USSR), used electron representations for the clarification of the characteristics of heterogeneity of the active surface of semiconductor contacts.
- 4) F. F. Vol'kenshteyn, V. B. Sandomirskiy and Sh. M. Kogan, (Institute of Physical Chemistry, AS USSR), investigated the influence of exposure as well as of an external electric field on the absorptive power of a semiconductor.
- 5) A. N. Terenin spoke about the investigation of the structure and the behavior of surface formations in the case of adsorption and catalysis.
- 6) V. F. Kiselev (Moscow University), dealt with problems concerning the elementary act of catalysis.
- 7) G. K. Boreskov, Physical-Chemical Institute imeni L. Ya. Karpov (Fiziko-khimicheskiy institut im. L. Ya. Karpova), reported on the dependence of the catalytic activity of metals on their position in the periodic system of elements.

Card 2/5

Physics and Physical Chemistry of Catalysis.
Transactions of the All-Union Conference

SOV/ 30-58-7-34/49

- 8) V. L. Bonch-Bruyevich and V. B. Glasko, (Moscow University), reported on the results of the adsorption computation of metals.
- 9) A. A. Balandin, Institute of Organic Chemistry AS USSR (Institut organicheskoy khimii Akademii nauk SSSR), reported on new data concerning the rôle played by structure factors in heterogeneous catalysis.
- 10) V. V. Voyevodskiy disproved his (and N. N. Semenov's) hypothesis of the existence of surface lattices and a heterogeneous catalysis.
- 11) Ya. T. Eydus and N. I. Yershov, (Institute of Organic Chemistry, AS USSR), O. A. Golovina, M. M. Sakharova, S. Z. Roginskiy and Ye. S. Dokukina, (Institute of Physical Chemistry, AS USSR), proved the existence of polymerization lattices in heterogeneous-catalytic processes of hydrocarbon synthesis.
- 12) N. N. Tikhomirov, P. N. Bubnov and V. V. Voyevodskiy, (Institute of Chemical Physics, AS USSR), reported on the application of the method of paramagnetic resonance of electrons for the purpose of investigating the interaction

Card 3/5

Physics and Physical Chemistry of Catalysis.
Transactions of the All-Union Conference

SOV/ 30-58-7-34/49

- of molecular oxygen with the free carbon valences.
- 13) Ya. K. Syrkin, (Institute of General and Inorganic Chemistry AS USSR) (Institut obshchey i neorganicheskoy khimii Akademii nauk SSSR), reported on problems concerning the molecular mechanism in catalysis.
 - 14) K. V. Topchiyev, Moscow University, gave a survey on the data concerning catalytic activity of aluminum silicates.
 - 15) L. I. Piguzova and M. A. Kaliko, All-Union Scientific Research Institute of Mineral Oil Industry (Vsesoyuznyy nauchno-issledovatel'skiy institut neftyanykh promyshlennosti) reported on problems concerning characteristics of active acid centers in cracking and in catalytic reactions with aluminum silicates.
 - 16) N. M. Chirkov, Institute of Chemical Physics, AS USSR, proved the proton character of the mechanism of homogeneous acid catalysis.
 - 17) O. V. Krylov, Institute of Chemical Physics, AS USSR, spoke about the heterogeneous catalysis of acids.
 - 18) G. M. Zhabrova, V. I. Vladimirova and Ye. I. Yegorov, Institute of Physical Chemistry, AS USSR, spoke about the sorption of ions in the production of a zinc oxide catalyst.

Card 4/5

Physics and Physical Chemistry of Catalysis.
Transactions of the All-Union Conference

SOV/ 30-58-7-34/49

19) O. M. Poltorak, Moscow University, reported on problems concerning the genesis of catalysts.

Card 5/5

AUTHORS: Sakovich, G. V. , Boldyrev, V. V. 76-32-2-11/38

TITLE: On the Catalysis by Solid Products During Topochemical Reactions (K voprosu o katalize tverdykh produktom pri topokhimicheskikh reaktsiyakh)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1958, Vol. 32, Nr 2, pp.298-305 (USSR)

ABSTRACT: There is no uniform opinion on the autocatalytic effect of the product in topochemical reactions until now (References 1-5). It is pointed out that the conditions for the formation of the reaction nucleus and its form are mainly determined by the structure and the anisotropy of the lattice from the initial product. It is shown that all existing data clearly point out that the solid product has a catalytic effect on the velocity of thermal fission, and that the intensity of this effect depends on the state of the solid reaction product. The characteristic feature of autocatalysis in topochemical reactions is represented by the fact that the cata-

Card 1/3

76-32-2-11/38

On the Catalysis by Solid Products During Topochemical Reactions

lytic effect is not exercised by the whole substance in reaction but only by one part of it being in contact with the initial substance in the reaction zone. If therefore the thermodynamic state of the new phase does not change the catalytic effect of the product per unit volume of the reaction zone remains constant for the whole period of reaction. From this constant character follows that the shape of the transformation curves only depends on the character of the change of the size of the reaction zone with time or of the value of the reaction surface proportional to it. Therefore the autoacceleration typical for topochemical reactions by which the reaction velocity reaches a maximum, is only a consequence of the formation of the reaction zone and not one of autocatalysis. The catalytic effect of the reaction product, however, has an effect on the change of the velocity constant, but it does not change the character of the velocity over time curve. It can, at present, be assumed as sure that in a number of cases additions of reaction processes as well as additions of other substances can exercise an influence on the velocity of thermal decomposition. Summa-

Card 2/3

On the Catalysis by Solid Products During Topochemical Reactions 76-32-2-11/38

rizing it is stated that the phenomena of autocatalysis in topochemical decomposition reactions must not be put on the same level with the effect of additions on the velocity. There are 1 figure, and 76 references, 41 of which are Soviet.

ASSOCIATION: Tomskiy gosudarstvennyy universitet im. V. V. Kuybysheva
(Tomsk State University imeni V. V. Kuybyshev)

SUBMITTED: October 9, 1956

1. Catalysis--Theory 2. Solids--Catalytic properties 3. Chemical
reactions--Catalysis

Card 3/3

5(3)

SC7/156-83-1-6/54

AUTHORS:

Boldyrev, V. V., Dolgova, V. P., Skint, A. A.

TITLE:

Investigation of the Aging Process of Lead Oxalate (Issuche-
niye protsessa stareniya oksalata svintsa)

PERIODICAL:

Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya
tekhnologiya, 1959, Nr 1, pp 24 - 27 (U.S.S.R)

ABSTRACT:

Previous papers (Ref 1, Ref 2) showed that the rate of
thermal decomposition of lead oxalate depends on the time
which has passed since the production of the preparation.
Fresh lead oxalate decomposes faster than aged lead oxalate.
The variation of the decomposition constants depending on
temperature (Diagram, Fig 1) is investigated in this paper.
The decomposition constant was calculated according to the
equations $1-a = e^{-Kt^n}$ and

$K = nk^{\frac{1}{n}}$ on the basis of the values determined. K decreases
with a rise of temperature and aging whereas the exponent n
shows an increase. The aging process can be described well
by a topokinetic equation with the exponent n near 1. n=1
denotes a reaction of the first order in which the reaction

Card 1/2

Investigation of the Aging Process of Lead Oxalate

SOV/156-55-1-6/54

rate is proportional to the portion of the substance not yet reacting. This might also hold for the aging process which is based on the elimination of metastable lattice defects. In this case the reaction rate must be proportional to the number of defects still present at the respective moment. If lead oxalate is treated with ultrasonics the aging process is accelerated. In this case linear dislocations are eliminated in the same gliding surface which is known as "polygonization". These processes take place also at low temperatures and with little energy expenditure. There are 2 figures, 1 table, and 2 references, 5 of which are Soviet.

ASSOCIATION: Kafedra neorganicheskoy khimii Tomskogo gosudarstvennogo universiteta im. V. V. Kuybysheva (Chair of Inorganic Chemistry of Tomsk State University imeni V. V. Kuybyshev)

SUBMITTED: June 23, 1958

Card 2/2

5(3, 4) ..

SOV/63-4-2-33/39

AUTHORS: Boldyrev, V.V., Dolgova, V.P.

TITLE: The Effect of the Degree of Dispersion on the Rate of Thermal Decomposition of Lead Oxalate

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 2, pp.283-284 (USSR)

ABSTRACT: The rate of thermal decomposition of lead oxalate depends on its time of storing [Ref 1, 2]. The effect of the degree of dispersion on this rate has been studied on fresh and aged crystals of lead oxalate. In the first case the degree of dispersion has only a slight effect, in the second case it is considerable. This is explained by the fact that aging leads to the liquidation or regrouping of at least a part of the metastable reversible lattice defects. These defects may be dislocations originated when crystal growth proceeds at a high rate. There is 1 graph and 9 references, 6 of which are Soviet, 2 English and 1 German.

Card 1/2

SOV/63-4-2-33/39

The Effect of the Degree of Dispersion on the Rate of Thermal Decomposition of Lead Oxalate

ASSOCIATION: Tomskiy gosudarstvennyy universitet imeni V.V. Kuybysheva (Tomsk State University imeni V.V. Kuybyshev)

SUBMITTED: October 10, 1958

Card 2/2

5(2)

SOV/63-4-2-39/39

AUTHORS: Boldyrev, V.V., Zakharov, Yu.A.

TITLE: On the Effect of Admixtures on the Rate of Thermal Decomposition of Silver Oxide

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 2, pp 287-288 (USSR)

ABSTRACT: The kinetics of thermal decomposition was investigated by means of a quartz balance. It has been shown that the decomposition rate of pure silver oxide is increased in the beginning, and takes a gradual course later. The introduction of a cadmium addition first accelerates the decomposition and then reduces it. On the whole, the decomposition is slower than in the pure substance. The introduction of mercury accelerates the decomposition. The additions affect either the lattice or the ionic and electron processes of decomposition. The accelerating influence of mercury is explained by its transition from the bivalent to the monovalent state. There is 1 graph and 3 Soviet references.

Card 1/2

SOV/63-4-2-39/39

On the Effect of Admixtures on the Rate of Thermal Decomposition of Silver Oxide

ASSOCIATION: Tomskiy gosudarstvennyy universitet imeni V.V. Kuybysheva (Tomsk State University imeni V.V. Kuybyshev)

SUBMITTED: December 29, 1958

Card 2/2

USCOMM-DC-61,409

5(4)

AUTHOR:

Boldyrev, V.V.

SOV/76-33-11-28/47

TITLE:

On the Application of the Electron Theory of ⁷Adsorption for the Study of the Kinetics and the Mechanism of Topochemical Reactions

PERIODICAL:

Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 11, pp 2539-2541 (USSR)

ABSTRACT:

At the thermal decomposition¹ of solid substances, the medium often has a great influence on the decomposition rate, though no chemical reaction occurs between the medium and the substance. A good example is the thermal decomposition of silver oxalate. According to data by Szabo and Biro-Sugar (Ref 1) the decomposition is considerably accelerated by hydrogen, while oxygen and carbon dioxide have an inhibiting effect. Macdonald and Hinshelwood (Ref 2) established that an excess of nitrations at the preparation of silver oxalate inhibits the thermal decomposition of the latter, while an excess in oxalation makes possible the preparation of a silver oxalate with higher rate of thermal decomposition. Macdonald and Sandison (Ref 4) observed that glucose accelerates the thermal decomposition of silver oxalate, while substances,

Card 1/3

On the Application of the Electron Theory of
Adsorption for the Study of the Kinetics and the
Mechanism of Topochemical Reactions

SOV/76-33-11-25/47

such as nitro benzene, act as inhibitors. B.V. Yerofeyev, P.I. Bel'kevich, and A.A. Volkova (Ref 5) pointed out that oxidation agents inhibit this thermal decomposition while reduction agents accelerate it. The observations made may fully be explained by the electron theory of the adsorption and the catalysis (Refs 7, 12), if the properties of the elementary phases, through which the process of thermal decomposition passes, are taken into consideration. Under the same conditions the thermal decomposition of the silver oxalate will be the faster the higher the concentration of free electrons in the conductive zone is. The concentration may vary by the adsorption of molecules with electron-donor or -acceptor properties and thus also the different effect of the above-mentioned compounds may be explained. The rate of the thermal decomposition of solid substances also depends on the concentration of ion defects in the lattice of the substance, as was shown by experiments of Gray and Waddington (Ref 15), and by the author together with Zakharov, Yeroshkin and Vasil'yev. There are 15 references, 5 of which are Soviet. ✓

Card 2/3

On the Application of the Electron Theory of
Adsorption for the Study of the Kinetics and the
Mechanism of Topochemical Reactions

SOV/76-33-11-28/47

ASSOCIATION: Tomskiy gosudarstvennyy universitet im. V.V. Kuybysheva
(Tomsk State University imeni V.V. Kuybyshev) ✓

Card 3/3

BOLDYREV, V. V.

Doc Chem Sci - (diss) "Effect of defects in crystals on the rate of thermal decomposition of solid substances." Novosibirsk, 1961. 24 pp; (Academy of Sciences USSR, Siberian Division, Joint Academic Council on Chemical Sciences); 220 copies; price not given; list of author's works on pp 20-24 (33 entries); (KL, 10-61 sup, 206)

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S/195/60/001/002/002/010
B004/B067

15.2142 also 1145, 1155

AUTHOR: Boldyrev, V. V.

TITLE: Effect of Crystal Defects on the Thermal Decomposition of Solid Substances

PERIODICAL: Kinetika i kataliz, 1960, Vol. 1, No. 2, pp. 203 - 211

TEXT: The author gives a survey and a general discussion of experimental studies on the effect of various crystal defects on the thermal decomposition of solid substances. The following conclusions are drawn: The influence exerted by the various defects on the decomposition rate depends on the reaction mechanism. If the decomposition is caused by a separation of the bonds within the anion or cation component of the crystal lattice, the rate of thermal decomposition is influenced by such defects as extend the active crystal surface: change of the habit, micro-cracks, dislocations. If the decomposition is caused by electron transition from anion to cation, the following factors also influence the process: number of ion vacancies, number of ions in the interstices, and concentration of free electrons in the lattice. The author refers to

Card 1/2

87450

Effect of Crystal Defects on the Thermal
Decomposition of Solid Substances

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B004/B067

studies performed by Yu. A. Zakharov, V. P. Dolgova, V. I. Yeroshkin, A. V. Boldyreva, V. N. Manyakhina, A. V. Safiulina, E. G. Pinayevskaya, M. S. Sokolova, B. I. Treskova, V. A. Zhigareva, A. A. Shint, and L. K. Yakovlev with his assistance or under his guidance. There are 1 table and 59 references: 25 Soviet, 5 US, 22 British, 5 German, and 2 French.

ASSOCIATION: Tomskiy politekhnicheskii institut im. S. M. Kirova (Tomsk Polytechnic Institute imeni S. M. Kirov)

SUBMITTED: December 21, 1959

Card 2/2

BOLDYREV, V.V.; YEROSHKIN, V.I.; ZAKHAROV, Yu.A.

Effect of cadmium and mercury admixtures on the rate of thermal decomposition of silver oxalate. Izv.vys.ucheb.zav.; khim.i khim tekhn. 3 no.1:33-35 '60. (MIRA 13:6)

1. Kafedra neorganicheskoy khimii Tomskogo gosudarstvennogo universiteta imeni V.V. Kuybysheva.

(Silver oxalate)

(Cadmium)

(Mercury)

BOLDYREV, V.V.; SHMIDT, I.V.

Shapes of the nuclei in the dehydration of zinc sulfate
heptahydrate. Kin. 1 kat. 1 no. 4:537-538 N-D '60.
(MIRA 13:12)

1. Tomskiy politekhnicheskii institut imeni S.M. Kirova.
(Zinc sulfate) (Dehydration (Chemistry))

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9.4300 (1145, 1147, 1155)
24.7800 1043, 1144, 1160

S/063/60/005/005/012/021
A051/A029

AUTHORS: Vorob'yev, A.A., Professor, Zavadovskaya, Ye.K., Professor,
Boldyrev, V.V., Candidate of Chemical Sciences, Melik-Gaykazyan,
I.Ya., Candidate of Physical and Mathematical Sciences, Savintsev,
P.A., Candidate of Physical and Mathematical Sciences

TITLE: Physico-Chemical Problems of Dielectrics

PERIODICAL: Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva im. D.I.
Mendeleyeva, 1960, No. 5, Vol. 5, pp. 573-582

TEXT: Dielectrical materials should have a high thermal, chemical and radiation resistance, a high mechanical and electrical strength, in some cases they should have a low value of the angle of losses, a low electroconductivity and a high dielectrical constant (Ref. 1). Some of the more recent fields of application are scintillation counters, where the dielectrics with a large width of the forbidden zone of energy are used, or in explosives (Ref. 2), where the electronic and ionic processes which occasionally take

Card 1/14

9

Physico-Chemical Problems of Dielectrics

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place in the dielectrics are applied. In outlining the physico-chemical properties of dielectrics, the connection between these properties are discussed in reference to the energy of the lattice. It is pointed out that, since little is known of the physical processes in dielectrics when acted upon by an electrical field, chemistry and the science of electrical materials is mostly empirical. The physical properties of dielectrics in relation to their chemical composition and structure were studied. The dielectrical properties of simple substances with a known chemical composition were investigated (Ref. 1,4-24). It was found that the main properties of the dielectrics (thermal resistance, binding energy of the electron in the lattice, mechanical strength, optical properties, etc.), were directly determined by the strength and nature of the particle bond in the lattice. Under the effect of external conditions the interaction energy between these particles can be overcome and the lattice destroyed. A number of graphs are presented indicating how the various properties are affected by the lattice energy, i. e., the energy value necessary to divide the crystal lattice, consisting of ions, to individual ions and separation of these from one another to an infinitely large distance at a temperature of absolute zero. The case of binary ionic compounds of the $A_m B_n$ type, as described by Kapustinskiy (Ref. 25),

Card 2/17

Physico-Chemical Problems of Dielectrics

S/063/60/005/005/012/021
A051/A029

is given where the calculation of the energy of the lattices with a coordination number 6, is estimated according to formula (1): $U = 256.1$

$$\frac{(a + b)W_A \cdot W_B}{R_A + R_B}$$
 where a is the number of cations, b the number of anions, W_A and W_B the valencies of the anion and the cation, R_A and R_B the radii of the corresponding ions for the structure of a lattice of the sodium chloride type. A later version of the formula, where also the repulsion, as well as the attraction of the ions is considered, is given as:

$$U = 287.2 \frac{W_A \cdot W_B (a + b)}{R_A + R_B} \left(1 - \frac{0.345}{R_A + R_B}\right) \quad (2).$$
 The ionic crystals have a high value of lattice energy and thus also a high value of thermal and mechanical strength. In the case of isodesmic ionic lattices of the same structural type, the properties of the materials are connected with the energy of the crystal lattice determined by the chemical composition. Fig. 1 is a graphical representation of the effect of the hardness according to Moos, melting point, electrical strength of the ionic crystals by the lattice energy, Fig. 2 shows the same relationship for alkali earth metal oxides. From equation 1 it is seen that with a decrease in the size of the particles, which make up

Card 3/18

20623

Physico-Chemical Problems of Dielectrics

S/063/60/005/005/012/021
A051/A029

the lattice, the lattice energy increases. Fig.3 represents the relationship between the change in volume of an elementary nucleus of a molecule (Ref.3) in various compounds according to data from X-ray analyses, and the lattice energy for crystals of alkali-halide compounds. Fig.4 gives the relationship of the number of ions n in one cm^3 to the lattice energy for crystals of alkali-halide salts. The value of n was determined from:

$$n = \frac{N \cdot d}{2(A_1 + A_2)} \quad (3), \text{ where } N \text{ is } = 6.06 \cdot 10^{23}, d \text{ the specific gravity, } A_1 \text{ and } A_2$$

atomic weights of the ions. The specific thermal capacity c_p , at a constant pressure, is given in Fig.5 in relation to the lattice energy^p, and Fig.6 shows the relationship of the melting heat to the lattice energy. Experiments showed that the optical properties of ionic crystals also depend on the lattice energy. With an increase in the latter, the absorption of light changes in the infrared, visible and ultraviolet regions according to certain rules. The electronic polarizability in relation to the lattice energy for alkaline halides is shown in Fig.8 (Ref.30,31). A decrease or an increase of the dielectrical constant and of its components will be noted due to the shift in the ions corresponding to the change in the ion polarizability of the ions and their concentration with a change in the lattice energy. Fig.9 represents Card 4/13.

Physico-Chemical Problems of Dielectrics

20623
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A051/A029

sents the change in the electronic component of the dielectrical constant with a change in the lattice energy for crystals of the alkali-halide compound series. The relationship of the electroconductivity to the temperature of ionic crystals is described by the formula:

$\epsilon = \epsilon_1 e^{-u_1/kT} + \epsilon_2 e^{-u_2/kT}$, where u is the activation energy of the liberation processes of the ions in the lattice. Experimental data showed that a significant increase of the high-temperature range of the activation energy takes place with an increase in the lattice energy of the alkali-halide salt crystals. The sum of the activation energies at low and high temperatures was found to depend on the lattice energy. The conclusion is drawn here that the electroconductivity of the crystals is connected with the energy of the crystal lattice in a law sequence. Other properties, such as the effective mass of the electron and the magnitude of the oscillating quantum, are also thought to depend on the lattice energy. It is pointed out here that these relationships must be accurately established. The electrical strength of the dielectric is thought to increase with an increase in the lattice energy (Fig.1C). Other properties, such as the thermal resistance of the

Card 5/17

X

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A051/A029

Physico-Chemical Problems of Dielectrics

ionic crystals are in a reverse relationship to the lattice energy, but this phenomenon is assumed to be illusory, since the decomposition of these substances is also determined by the ionization potential, as well as the lattice energy. The reverse relationship is also observed in the case of the heterodesmic structures. Data obtained from Refs. 9, 10 on a comparison of the physico-chemical properties of liquid and gaseous organic dielectrics with their electrical strength in the aliphatic hydrocarbon series showed that the electrical strength changes sympathetically with the change in the intermolecular bond strength and does not depend on the bond strength within the molecule. These results were used to form a graph of the spark-over of the organic dielectrics (Fig. 11). Further mention is made of the connection between the physico-chemical properties of dielectrics and the lattice energy when the structure is destroyed. The controversial facts noted in real crystals, viz., the mechanical properties of these single crystals changing according to certain rules with the change in the lattice energy, are explained by the behavior of the defects, especially of dislocations, i.e., by the energy of the crystal lattice. One of the possible means for obtaining a controllable concentration of the defects in the lattice is the formation of solid solutions. Upon investigating the electrical properties of the solid

Card 6/17

20623

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A051/A029

Physico-Chemical Problems of Dielectrics

solutions CaO-ZrO_2 , a defect in their structure was noted (Ref. 47). A complex investigation of the physical properties of the solid solutions KCl-RbCl , KCl-KBr , NaCl-NaBr was carried out. It was proven that the general characteristic, which determines the physical properties of a complex dielectric, was the heat of formation. It is expected that a drop in the interaction forces would involve a drop in the strength and an increase in the defect of the solid solution. The relationship between the heat of formation of the solid solution and the average number of particles n included in the volume of the elementary nucleus (for an ideal single crystal $n = 8$) leads to the conclusion that the more heat absorbed in the formation of the solid solution, i.e., the lower the energy of interaction of the particles in the crystal lattice of the crystal, the more defective is its structure. The connection between the defectiveness of the structure and the lattice energy leads the authors to assume that the laws obtained for the single crystals are also applicable to the polycrystals used commercially. Finally, the authors discuss the connection between the physico-chemical properties of solid solutions of alkali-halide salts. It is said that the introduction of admixtures into the crystal can lead to a change in the interaction between the particles of the crystal lattice of the substance. Experimental data on the physico-chemical

Card 7/8

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Physico-Chemical Problems of Dielectrics

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properties of solid solutions of ionic compounds are compared and certain assumptions are therefrom derived on the interaction of ions in the investigated systems. The most important value characterizing solid solutions is their heat of formation and reference is made to the formula used by Grimm (Ref. 61) for calculating the energy of the crystal lattice. The heat of formation of the solid solution is estimated experimentally as the difference between the heats of dissolution of the solid substance and the mechanical mixture of components having the same weight and composition. The connection between the heat of formation and the electrical properties of the alkali-halide solid solutions is noted. The electrical strength of NaCl-NaBr, KBr-KJ, KCl-KBr, NaBr-KBr is lower than that of the components. Solid solutions formed by heat absorption have a weakened structure and are characterized by a lowered electrical, schematic and thermal strength, high dielectrical losses and a defective structure. The electrical characteristics of dielectrics are connected with other properties, e.g., in the case of ionic crystals with the lattice energy, in homeopolar crystals with the energy of atomization, in molecular crystals with the energy of intermolecular bonds and in solid solutions with the amount of heat liberated in their formation. All these values are the higher, the higher the mechanical, thermal, chemical and elec-

Card 8/17

Physico-Chemical Problems of Dielectrics

20623
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A051/A029

trical strength of the dielectrics. The authors point out that in selecting new materials for dielectrics compounds with highly-charged atoms (boron, silicon, etc.), should be combined with non-deforming atoms creating rigid bonds (nitrogen, fluorine, etc.). It is worthwhile to investigate the possibilities of using temperatures and pressures obtained in explosive processes and electrical explosions when producing dielectrics to overcome the high activation barriers of the reaction. The problem of selecting new dielectrical materials is a matter for the chemist, as well as the physicist. There are 15 figures, 4 formulae, 1 table and 81 references: 62 Soviet, 12 English, 6 German, 1 unidentified.

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Card 9/18

BOLDYREV, V.V.; ZAKHAROV, Yu.A.

Anisotropy of the rate of decomposition of solids. Part 1:
Anisotropy of the rate of dehydration of potash alums. Zhur.
fiz. khim. 34 no.2:446-451 F '60. (MIRA 14:7)

1. Tomskiy gosudarstvennyy universitet.
(Alum) (Dehydration (Chemistry))

BOLDYREV, V.V.; PINAYEVSKAYA, E.N.; BOLDYREVA, A.V.; ZAKHAROV, Yu.A.;
KONYSHEV, V.P.

Effect of preliminary irradiation and chemical treatment on the
thermal decomposition rate of silver permanganate. Kin. i kat. 2
no.2:184-187 Mr-Apr '61. (MIRA 14:6)

1. Tomskiy politekhnicheskii institut imeni S. M. Kirova.
(Silver permanganate)

54600

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S/195/01/002/003/005/009

E030/E452

AUTHORS: Zakharov, Yu.A., Boldyrev, V.V. and Alekseyenko, A.A.

TITLE: Influence of the addition of cadmium on the velocity of thermal and radiochemical decomposition of silver carbonate

PERIODICAL: Kinetika i kataliz, v.2, no.3, 1961, 365-367

TEXT: The thermal decomposition of silver carbonate, both pure and with addition of 2.5 mole % cadmium carbonate, has been studied at 151° gravimetrically, unirradiated, and also with X-irradiation from apparatus РУП-2 (RUP-2) using 200 kV and I_a of 20 mA. The salts were formed by double decomposition. In the thermal decomposition, the specimens were suspended from a quartz spring balance with a sensitivity of 4×10^{-5} g in a chamber thermostatted to $\pm 0.2^\circ\text{C}$. In the radiochemical decomposition, the kinetics were measured photometrically by the change in colour of the specimens. The object of the work was to study an example of decomposition of a solid solution where bonds in the anionic or cationic lattice components were broken; most examples hitherto have concerned only rupture of like bonds. The results are shown in the figure, where α is the fraction of specimen reacted. It is seen that

Card 1/2

Influence of the addition ...

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E030/E452

the addition of defects in any way always increases the decomposition rate; this, coupled with the X-ray finding that the addition of Cd^{++} deforms the cation bonds shows that defect formation is responsible for the increased decomposition. This is in contrast to the data on silver oxalate, where decomposition is slowed up by addition of cadmium which hinders only the electronic and ionic transfers leading to decomposition. There are 1 figure, 2 tables and 15 references: 11 Soviet and 4 non-Soviet. The references to English language publications read as follows: Ref.5: L. Suchow, S.Hersh, J.Phys. Chem., 57, 438, 1953; Ref.7: P. Gray, F.Waddington, Proc. Roy. Soc., A241, 110, 1957; Ref.14: J.Mitchell, Phil. Magazine, 40, 248, 1949 Ref.15: J.Thomas, F.C.Tompkins, Proc. Roy. Soc., 209, 550, 1951.

ASSOCIATION: Tomskiy politekhnicheskii institut im. S.M.Kirova
(Tomsk Polytechnical Institute imeni S.M.Kirov)

SUBMITTED: October 17, 1960

Card 2/2

BOLDYREV, V.V.; PRON'KIN, V.P.

Raising the thermal stability of silver acetylide by the addition
of cadmium. Zhur.VKHO 6 no.4:476-477 '61. (MIRA 14:7)

1. Tomskiy politekhnicheskii institut.
(Silver acetylide) (Cadmium)

~~BOLDYREV, V.V.~~

Mechanism of the effect of preliminary irradiation on the rate
of thermal decomposition of solids. Zhur. fiz. khim. 35 no. 4:950-
952 Ap '61. (MIRA 14:5)

1. Tomskiy politekhnicheskiy institut.
(Solids, Effect of radiation on)

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S/076/61/035/006/011/013
B127/B203

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AUTHORS: Skorik, A. I. and Boldyrev, V. V.

TITLE: Arrangement for investigating the kinetics of thermal decomposition of solids during irradiation

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 6, 1961, 1370-1371

TEXT: The authors describe an apparatus for observing the kinetics of thermal decomposition of solids at 100-250°C during irradiation. The arrangement consisted mainly of an electric furnace kept at constant temperature by a thermocouple. An X-ray tube 3-BTN-200 (3-BTN-200) was used as radiation source. The pickup of the dosimeter was attached below the furnace (roentgenometer chamber PM-1-M (RM-1-M) or a chemical dosimeter cell). The riser of the manometer was arranged in an inclined position for a more accurate reading of the pressure in the apparatus. A Wheatstone bridge circuit was used for automatic reading. A platinum wire was sealed in the inclined manometer tube (diameter 0.09 mm). The deviation from zero in the bridge circuit was measured with an electronic potentiometer ЭПМ-0.9М1 (EPP-0.9M1). The sensitiveness of this equipment is controllable by a

Card 1/4

24658

S/076/61/035/006/011/013
B127/B203

Arrangement for investigating the...

potentiometer. The weighed sample was in a spoon inside the reaction chamber; the spoon was moved by means of a four-piece solenoid. The amperage in the solenoid was controlled by a rheostat. The temperature was measured by a thermocouple whose indications were recorded by a potentiometer. The reaction chamber, the furnace, and the manometer were attached to an X-ray apparatus PYN-5-20-200 (RUP-5-20-200). All control instruments were protected from radiation. Method of investigation: The substance to be investigated is introduced in the reaction chamber, one part of which is protected from radiation by lead, and is not heated. The apparatus is evacuated to a pressure of 1 mm Hg. The potentiometer is adjusted to zero with the aid of resistor r_1 . After start of operation of the apparatus, the tube with the reaction substance is introduced in the warmer sections of the reaction chamber. The volume of the apparatus changes during the experiment by less than 0.5 %, which can be neglected. Since the Hg level has a large surface in the Hg balloon, and lifts and drops by only 0.06 mm, also this error may be neglected. There are 1 figure and 5 references: 4 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: L. Bircomshaw, J. Edwards, J. Chem. Soc., 1805, 1950.

Card 2/4

24658

Arrangement for investigating the...

S/076/61/035/006/011/013
B127/B203

ASSOCIATION: Tomskiy politekhnicheskiy institut (Tomsk Polytechnic Institute)

SUBMITTED: January 3, 1961

Legend to Fig. 1: (1) Vertically fixed electric furnace, (2) thermo-regulator with photocontact, (3) radiation source, (4) dosimeter, (5) reaction vessel, (6) Hg manometer, (7) Wheatstone bridge, (8) electronic potentiometer, (9) potentiometer, (10) spoon for the weighed sample, (11) metal rod for holding the spoon, (12) solenoid, (13) solenoid switch, (14) rheostat, (15, 16) thermocouples, (17) ground-in stopper, (18) evacuation tube, (19) valve. (a) to galvanometer, (b) to pump.

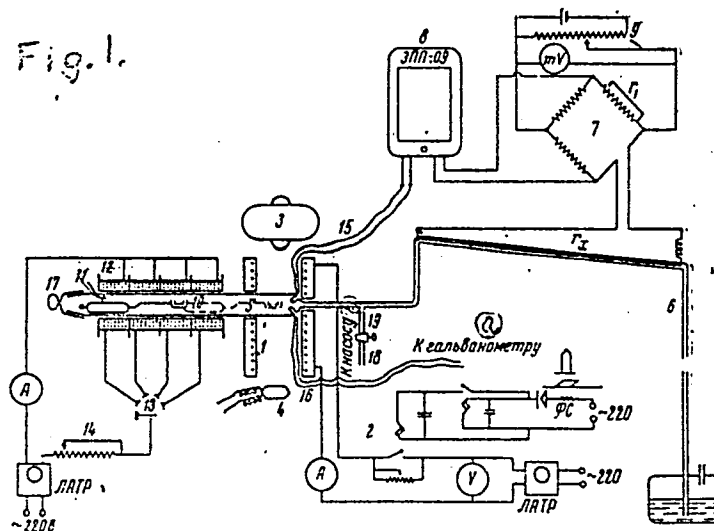
Card 3/4

24658

Arrangement for investigating the...

S/076/61/035/006/011/013
B127/B203

Fig. 1.



Card 4/4

L3221

S/844/62/000/000/005/129
D290/D307

5.6480
AUTHOR: Boldyrev, V. V.

TITLE: The mechanism of thermal decomposition of irradiated solids

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 42-47

TEXT: The effects of various types of radiation on the subsequent thermal decomposition of solids is described. The displacement theory of Prout cannot explain many published experimental results for irradiation with low energy electrons and γ rays; the displacement effect will probably be shown after irradiation with neutrons or heavy particles, or with γ rays or electrons whose energies exceed a certain threshold. It is suggested that the effect of irradiation with low energy γ quanta or electrons on subsequent thermal breakdown can be explained by the formation of small included regions of a new phase which can act as initiating centers for

Card 1/2

The mechanism of thermal ...

S/844/62/000/000/005/129
0290/0507

subsequent decomposition. The active centers are similar to those produced by preliminary heating or irradiation with light, except that irradiation with γ quanta or electrons produces active centers throughout the body of the solid and not just on the surface; therefore, the effect of irradiation with γ quanta or electrons on the kinetics of the subsequent thermal decomposition will be far greater than that of preliminary heating or irradiation with light. X

ASSOCIATION: Tomskiy politekhnicheskii institut im. S. M. Kirova
(Tomsk Polytechnic Institute im. S. M. Kirov)

Card 2/2

S/844/62/000/000/120/129
D207/D307

AUTHORS: Boldyrev, V. V., Zalharov, Yu. A., Yeroshkin, V. I. and
Tronov, A. B.

TITLE: Effect of preliminary irradiation on the rate of thermal decomposition of silver oxalate and carbonate containing admixtures

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 693-698

TEXT: Pure Ag_2CO_3 , pure $\text{Ag}_2\text{C}_2\text{O}_4$ and the solid solutions 97.5% $\text{Ag}_2\text{C}_2\text{O}_4$ + 2.5% CdC_2O_4 , 97.5% Ag_2CO_3 + 2.5% CdCO_3 , 95% $\text{Ag}_2\text{C}_2\text{O}_4$ + 5% CdC_2O_4 were subjected to γ rays, x rays and uv radiations. A study was made of the effect of the cadmium impurity on (1) thermal decomposition after irradiation of the carbonate and oxalate, and (2) radiolysis of these two compounds. Preliminary irradiation with

Card 1/2

Effect of preliminary ...

S/844/62/000/000/120/129
D207/D307

Co⁶⁰ γ rays (50 c source) or uv radiation from a PRK-7 (PRK-7) lamp accelerated subsequent thermal decomposition of pure oxalate at 158°C but this radiation effect was reduced on addition of Cd. X rays from a 1844-200 (1 BPM-200) tube accelerated subsequent thermal decomposition of pure carbonate at 151°C and this acceleration was intensified by adding Cd. Cadmium reduced the photolytic action of γ rays and uv in the case of the oxalate but it intensified the x ray photolysis of the carbonate. The opposite effects of cadmium in these two compounds are due to the difference in the mechanism of decomposition: in the oxalate the anion-cation bonds are broken and metallic silver is produced; in the carbonate the internal bonds are severed in the CO₃ ion and Ag₂O is formed. Cadmium acts by producing deformations and lattice defects as well as by taking part in electronic and ionic processes of decomposition. There are 3 figures and 5 tables.

ASSOCIATION: Tomskiy politekhnicheskii institut im. S. M. Kirova
(Tomsk Polytechnic Institute im. S. M. Kirov)

Card 2/2

BOLDYREV, V.V.; OBLIVANTSEV, A.N.

Effect of preirradiation on the rate of thermal decomposition of permanganates of metals of the first group of the periodic table. Kin.i kat. 3 no.6:887-893 N-D '62. (MIRA 15:12)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki pri
Tomskom politekhnicheskom institute imeni Kirova.
(Permanganates)
(Radiation)

ZAKHAROV, Yu.A.; BOLDYREV, V.V.; LYKHIN, V.M.; VOTINOVA, L.A.;
SAVEL'YEV, G.G.; BREGER, A.Kh.

Study of the effect of preliminary irradiation on the thermal
degradation of silver oxalate containing cadmium admixture.
Dokl.AN SSSR 145 no.1:122-124 J1 '62. (MIRA 15:7)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki, elektroniki
i avtomatiki pri Tomskom politekhnicheskoye imeni S.M.Kirova
i Fiziko-khimicheskiy institut imeni L.Ya.Kapova. Predstavleno
akademikom M.M.Dubininym.

(Silver oxalate) (Cadmium) (Radiation)

ACCESSION NR: AT4016328

S/0000/62/000/000/0527/0532

AUTHOR: Boldyrev, V. V.; Skorik, A. I.

TITLE: Effect of simultaneous x-irradiation on the rate of thermal decomposition of barium azide (preliminary report)

SOURCE: Vses. soveshch. po fiz. shchelochnogaloidn. kristallov. 2d, Riga, 1961. Trudy*. Fiz. shchelochnogaloidn. kristallov (Physics of alkali halide crystals). Riga, 1962, 527-532

TOPIC TAGS: barium azide, barium azide decomposition, reaction kinetics x-ray, electron mobility, ion defect, radiation induced defect

ABSTRACT: The kinetics of the thermal decomposition of barium azide were studied in a vertical electric oven equipped with a photocontact thermostat, a Z-BTN-200 X-ray tube, a RM-I-M dosimeter, and an evacuated capsule connected to a mercury manometer. Samples weighing 10 mg were subjected to a temperature of 125.5C for 25-75 minutes, in some cases with prior or simultaneous irradiation at 48 or 110 rads/min., the rate of decomposition being recorded continuously by an EPP-0.9-MI potentiometer on the basis of the changes in pressure. As shown in Fig. 1 of the Enclosure, thermal decomposition was markedly accelerated by simultaneous X-ray, but not by prior X-ray. After reviewing the pertinent literature, the authors

Card

173

1/2

ACCESSION NR: AT4016328

conclude that this increase in the thermal decomposition rate is due to the increased electron mobility resulting from their interactions with increasing concentrations of ion defects. Orig. art. has: 2 figures.

ASSOCIATION: Tomskiy politekhnicheskii Institut Im. S. M. Kirova (Tomsk Polytechnical Institute)

SUBMITTED: 00

DATE ACQ: 06Mar64

ENCL: 01

SUB CODE: IC, NP

NO REF SOV: 018

OTHER: 014

Card

2/2
2/3

BOLDYREV, V.V.; YEROSHKIN, V.I.

Effect of impurities on the photochemical stability of silver sulfite. Izv.vys.ucheb.zav.;khim. i khim.tekh. 6 no.2:338-339 '63. (MIRA 16:9)

1. Nauchno-issledovatel'skiy institut pri Tomskom politekhnicheskoye imeni Kirova.

(Silver sulfite) (Photochemistry)

L 18195-63

EWT(1)/EWP(q)/EWT(m)/BDS

AFPTC/ASD/ESD-3 JD

ACCESSION NR: AP3005593

S/0074/63/032/008/0948/0966

62

AUTHORS: Boldyrev, V. V.; Bystrykh, L. I.

TITLE: Chemical action of ionizing radiations on inorganic crystals

SOURCE: Uspekhi khimii, v. 32, no. 8, 1963, 948-966

TOPIC TAGS: Ionizing radiation, crystals, topochemical reactions

ABSTRACT: Information on the chemical changes taking place in ion crystals is extracted from the extensive literature on the reactions of solids to ionizing radiations. Topics covered are: the effect of heat, light, and ionizing radiations; experimental irradiation methods; methods of studying the chemical changes produced by the irradiation of solids; chemical changes in inorganic ion crystals exposed to irradiation; and the effect of prior irradiation on the rate of topochemical reactions in solids.

ACCESSION NR: AP3005593

ASSOCIATION: Tomskiy politekhnicheskii in-t im. S. M. Kirova (Tomsk Polytechnical Institute); Tomskiy gos. universitet im. V. V. Kuybyshcheva (Tomsk State University)

SUBMITTED: 00

DATE ACQ: 28 Aug 63

ENCL: 60

SUB CODE: CH, PH

NO REF SOV: 055

OTHER: 117

Card 1/1

BOLDYREV, V.V.; OBLIVANTSEV, A.N.

Effect of a preliminary proton irradiation on the rate of
thermal decomposition of potassium permanganate. Dokl. AN
SSSP 150 no.4:826-828 Je '63. (MIRA 16:6)

1. Nauchno-issledovatel'skiy institut yadernykh issledovaniy
pri Tomskom politekhnicheskoye institute imeni S.M. Kirova.
Predstavleno akademikom M.M. Dubininym.
(Potassium permanganate) (Protons)
(Chemical reaction, Rate of)

BOLDYREV, V.V.; MEDVINSKIY, A.A.

Possible quantum mechanical interpretation for the classification of thermal decomposition reactions in solids. Kin. i kat. 4 no.4: 549-556 J1-Ag '63. (MIRA 16:11)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki, elektroniki i avtomatiki pri Tomskom politekhnicheskoye imeni Kirova.

BOLDYREV, V.V.; BYSTRYKH, L.I.

Chemical action of ionizing radiations on inorganic crystals.
Usp.khim. 32 no.8:948-966 Ag '63. (MIRA 16:9)

1. Tomskiy politekhnicheskii institut imeni Kirova i Tomskiy gosudarstvennyi universitet imeni Kuybysheva.

BOLDYREV, V.V.; ZAKHAROV, Yu.A.; LYKHIN, V.M.; VOTINOVA, L.A.

Effect of the addition of cadmium ions on the thermal stability of silver oxalate. Kin.i kat. 4 no.5:672-682 S-O '63. (MIRA 16:12)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki, elektroniki i avtomatiki pri Tomskom politekhnicheskoye institute imeni Kirova.

RUZIN, M.I.; BOLDYREVA, N.A.; SAVEL'YEVA, T.A.

Some results of the calculation of the coefficient of
turbulent exchange in a boundary layer. Trudy Len. gidromet.
inst. no.15:66-80 '63. (MIRA 17:1)

BOLDYREV, V.V.

Catalytic action of the product in topochemical reactions. Kin.
i kat. 5 no.3:571-575 My-Je '64. (MIRA 17:11)

1. Tomskiy politekhnicheskii institut imeni Kirova.

ZAKHAROV, Yu.A.; SAVEL'YEV, G.G.; BOLDYREV, V.V.; VOTINOVA, L.A.:

Changes in the physicochemical properties of solids under the effect of additions. Part 3: Some properties of silver azide containing Pb^{++} and CO_3^{--} additions. Kin. i kat. 5 no.5: 807-814 S-O '64. (MIRA 17:12)

1. Tomskiy politekhnicheskii institut imeni Kirova.

ACCESSION NR: AP4028467

S/0181/64/006/004/1249/1251

AUTHORS: Trubitsy*n, A. M.; Kabanov, A. A.; Boldy*rev, V. V.; Makhovik, A. K.

TITLE: The nature of electrical conductivity in the permanganates of alkali metals

SOURCE: Fizika tverdogo tela, v. 6, no. 4, 1964, 1249-1251

TOPIC TAGS: electric conductivity, alkali permanganate, thermoelectromotive force, transference number

ABSTRACT: The type of conductivity in ionic crystals of permanganate type was established by investigating the electrical conductivity, the transference numbers, and the thermoelectromotive force. The samples were prepared from chemically pure materials pressed at room temperature under a pressure of 10^4 kg/cm² for 4 minutes. It was found that the electrical conductivity is practically the same at high temperatures for KMnO_4 , RbMnO_4 , and CaMnO_4 , but that the activation energies are different for each. The MnO_4^- is much larger than the cations, and this, with the experimental data, indicates that the electrical conductivity of the indicated compounds is nonionic and that the cations are not responsible for the electrical conductivity. In all these permanganates the thermoelectromotive force proved to be

Card 1/2

ACCESSION NR: AP4028467

negative, indicating an electron mechanism of electrical conductivity. Orig. art.
has: 1 figure.

ASSOCIATION: Tomskiy institut radioelektroniki i elektronnoy tekhniki (Tomsk
Institute of Radio Electronics and Electronic Engineering)

SUBMITTED: 06Dec63

DATE ACQ: 27Apr64

ENCL: 00

SUB CODE: IC, EM

NO REF SOV: 004

OTHER: 005

Card 2/2

ACCESSION NR: AP4040954

S/0020/64/156/005/1143/1146

AUTHOR: Boldy*rev, V.V.; Skorik, A. I.

TITLE: Thermal decomposition of silver and barium azides at instant of X-ray irradiation

SOURCE: AN SSSR. Doklady*, v. 156, no. 5, 1964, 1143-1146

TOPIC TAGS: silver azide, barium azide, silver azide thermal decomposition, barium azide thermal decomposition, ultraviolet irradiation, silver nitride

ABSTRACT: The authors studied the kinetics of thermal decomposition of silver and barium azides. Analysis was carried out with and without irradiation at the instant of decomposition. Many authors contend that the thermal decomposition rate is determined by the process of exciting electrons out of the valency zone into the conductivity zone. The authors believed that the best method for verifying this hypothesis is the course of decomposition at the instant of irradiation. The test specimens were analyzed by a technique and on an apparatus which was described by A. I. Skorik and V. V. Boldy*rev (Zh. F. Kh. 35, (1961), 6). The Ag.N_3 was decomposed at 270°C . Fifteen milligram weighed portions were used. Irradiating the sample with X-rays or ultraviolet

Card 1/3